

RCA AMATEUR RADIO CLUB

OCTOBER, 2013

MONTHLY NEWSLETTER

INDIANAPOLIS, IN

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, OCT. 8th, 6:30 PM AT [G.T. SOUTH'S](#),
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE SEPTEMBER MEETING – Thanks to all who attended the September meeting! K9RU and AF9A gave a repeater update on the Echolink computer, and getting the fourth receive site at the Ivy Tech operational. All of the remote sites are now operational. Thanks to John Garino, KF9UH for getting Echolink up and running on the repeater. We are using one of John's laptop computers running the basic Echolink program. We plan is to add on the fancy features like voice announcements as time permits and we prove out the system. It has been operational for several weeks running on the temporary computer. WB9ERE, Dave Luz donated a couple of GE Master II an assortment of power transistors and other spare parts needed for repeater maintenance. Thanks Dave. There was discussion about a 20M mid-day net similar to an informal "sked" we had for several years from the Club station at Thomson. Some members are also interested in new Club shirts. We need someone to take the lead and investigate the feasibility of these projects. Some possible suggestions & improvements for Field Day were discussed.

NEXT TEST AMATEUR RADIO LICENSE TEST SESSION --

Time: Saturday, Oct. 12, 2013, 12:00 PM (Walk-ins allowed)
Location: Salvation Army EDS Training Facility
4020 Georgetown Road
Indianapolis, IN 46254-2407
Contact: Jim Rinehart, K9RU. k9ru@arri.net 317 495-1933

HAMFESTS, OPERATING EVENTS

Oct 05 Hoosier Hills Hamfest, <http://www.hoosierhillshamfest.org/>
Oct 26-27 CQWW Phone Contest <http://cqww.com/index.htm>
Nov 16 Ft. Wayne Hamfest & Computer Expo, <http://www.fortwaynehamfest.com/>
Nov 30 Evansville Hamfest, <http://w9ear.org/hamfest.htm>

All dates, unless otherwise stated, are UTC.

<http://www.arri.org/contest-update-issues> Contests updates

<http://www.hornucopia.com/contestcal/> WA7BNM Contest Calendar

<http://www.arri.org/special-event-stations> ARRL Special Event Stations page

http://www.arri.org/exam_sessions/search ARRL training page for test sessions

<http://indyhams.org/events/> Indiana events and public service opportunities.

The CQ World Wide Phone DX contest has the best bad conditions and the most activity of all the DX contest during the year. This is the your best opportunity to get on the air and work DX stations. – K9RU

"AMAZING HELP" -- HAMS PLAY CRITICAL ROLE IN COLORADO FLOOD EVACUATION

Amateur Radio volunteers assisting with communications in the aftermath of the devastating Colorado flooding came in for high praise recently for their role in helping to safely evacuate youngsters and others from a mountain environmental education center threatened with being cut off by road washouts. In an [Op-Ed piece](#) last week in the *Longmont Times-Call*, Sandra Harem, the executive director of the [JPPI Outdoor Lab](#) in Estes Park, Colorado, cited the "amazing help" from hams and others in getting the students, school staff and Lab staff out of harm's way on September 12.

"The staff of the JPPI Outdoor Lab would like to extend our heartfelt gratitude to the volunteers of the [Mountain Emergency Radio Network](#) [MERN] and so many others who helped the seventh-grade students, chaperones and staff of St Vincent De Paul Catholic School and staff of the JPPI Outdoor Lab get home safely to their families," Harem said.

On September 12, Harem called the Larimer County Sheriff's Office to inquire about road conditions. Because of the heavy rainfall, she and the school's assistant principal were getting a group of seventh graders ready to leave as soon as possible. "The sheriff's office said Highways 34 and 36 were closed," she recounted. "We worked on alternative routes."

An hour later, the director of the affiliated High Peak Camp told Harem that they needed to relocate in case power went down. The sheriff's office advised relocating to a Red Cross evacuation center in Allenspark, which subsequently invited the group.

Hearing the call, MERN volunteer Karel Kosman, KDØRFT, contacted fellow MERN member Steve Coles, KDØRFQ, that the group needed help evacuating. Coles deployed to the JPPI Outdoor Lab and helped relocate the students, staff and chaperones safely, Harem said.

After Coles left to help others, communication was cut off, so the assistant principal and Harem drove to the Allenspark Fire Station and to the Estes Park Police Station hoping to get better information. "It took us until 9 PM to return to our group at Highlands [the shelter site] by hiking and a few helpful car rides, because Highway 7 had ruptured in two places," Harem said.

Early the next morning, Coles was back to help with communication with the Boulder County Office of Emergency Management. According to Harem, Coles advised the OEM to ask the Colorado Department of Transportation if it might be possible to take buses on the Peak to Peak Highway. A plan evolved to have the buses meet the group at the point of a highway washout near the junction of Highways 72 and 7, then walk the students across the compromised road to the buses. The Archdiocese of Denver, the superintendent of Catholic Schools and the Boulder County OEM okayed the plan.

That afternoon, buses arrived on Highway 7. "We transported the students, chaperones, St Vincent staff and JPPI Outdoor Lab staff to the meeting point, and all students were reunited with their families at St Vincent De Paul Catholic School that evening," Harem said.

Among others, Harem praised Coles for "his tireless patience, persistence and care of all of the students, chaperones and staff," and Kosman "for radioing on our behalf to Steve Coles." She also thanked all MERN members "for making it possible to have such effective communication during an emergency."

ARRL Colorado Section Manager Jack Ciaccia, WMØG, says MERN is an Amateur Radio repeater system built by members of the Boulder County ([BCARES](#)) group and was the

brainchild of BCARES Emergency Coordinator Allen Bishop, KØARK.

"The two MERN ham radio operators that were involved in this rescue, Steve Coles, KDØRFQ, and Karel Kosman, KDØRFT, are two of some 60 mountain residents who attended the ham radio classes put on by BCARES members in the mountain communities over the last year and were recently licensed after taking the FCC exam given by ARRL Volunteer Examiners who are also members of BCARES," Ciaccia pointed out.

He notes that the hams at the Boulder OEM and the EOC were BCARES operators who were monitoring all traffic from the MERN repeaters as well as from other EOCs on the air from flooded counties along the Front Range as well as communications from the state EOC. "The hams who happened to be monitoring at the Boulder EOC at the time were George Weber, KAØBSA, and Dave Sharpe, KIØHG," Ciaccia said. "These two hams, coincidentally, had been Steve and Karel's MERN ham radio license instructors and Volunteer Examiners as well as part of the BCARES group who built and installed the MERN repeaters."

Ciaccia said it was Weber and Sharpe who coordinated with the Boulder OEM and Transportation Group to arrange for the buses, then got them on their way by relaying communications from the MERN radio operators in the flood-stricken zones. --ARRL Letter

HAM RADIO PUBLICATIONS PIONEER, VISIONARY, ICONOCLAST WAYNE GREEN, W2NSD, SK

Wayne S. Green II, W2NSD ("Never Say Die"), of Hancock, New Hampshire, died September 13. He was 91. A well-known and often outspoken figure during what some consider Amateur Radio's golden years in the 1950s and 1960s, Green helmed *CQ Magazine* for 5 years before becoming the self-proclaimed "El Supremo and Founder" in 1960 of *73* magazine, which he published until 2003.

"The purpose of [73] at that time was to get more hams building equipment," Green recounted in a [radio interview](#) several years ago. A hallmark of 73 was Green's iconic, rambling and wide-ranging "Never Say Die" editorials, in which he rarely missed an opportunity to tweak the ARRL and his magazine competitors for their perceived shortcomings. ARRL CEO David Sumner, K1ZZ, said Green maintained his membership in the ARRL despite being a persistent critic.

"Wayne will be remembered in many different ways by many different people, but he will be long remembered," Sumner added. "In the early days of packet radio he gave me some good advice as to how the ARRL should promote the new technology: 'Talk about it as if everybody's doing it, and eventually they will be.'"

Indeed, Green often was ahead of the curve in promoting such technologies as single-sideband phone, solid-state, FM, and the marriage of computers and ham radio, and he went on to found and publish *Byte* and other computer-oriented publications. "I live mostly in the future," Green was quoted as saying.

ARRL Publications Manager and *QST* Editor Steve Ford, WB8IMY, got his start writing for Green. "Wayne published my first article way back in 1975," he said. "I still have a photocopy of the check he sent."

Green maintained a larger-than-life presence, even in the years after he faded from the Amateur Radio spotlight, and he never did really retire. "Hey old buddy, I will miss you," radio talk show host Art Bell, W6OBB, posted to Wayne Green's [blog](#). "NEVER SAY DIE is a

phrase that will be with me till it's my time." Green was an occasional guest on Bell's "Coast to Coast AM" overnight talk program. There hardly was an issue that Green would not confront, and he expounded a variety of unconventional science, health, and medical theories -- from cold fusion and the moon landing to AIDS and cancer cures. He continued to [write](#) and speak frequently on these topics and others, as well as on public policy, even at hamfests where he was a guest.

The "final" in his blog sums up Green's overarching philosophy. "Wayne Green passed away September 13, 2013 in a peaceful, painless transition from this life on Earth. An eternal optimist, and one who loved to share his never-ending zest for life, he was a friend to many and will be missed greatly. Wayne was not afraid of dying and was very much ready to embark on his next great adventure to the afterlife." --ARRL Letter

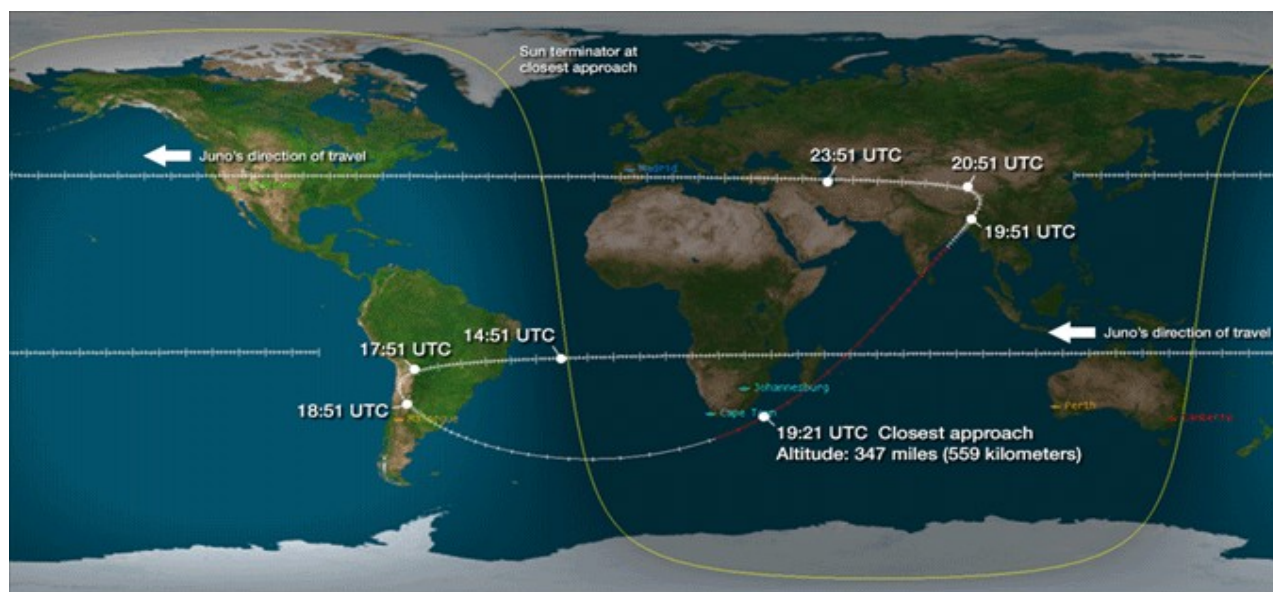
HAM RADIO COMMUNITY INVITED TO SAY "HI" TO JUNO SPACECRAFT

NASA's Juno spacecraft will fly past Earth on October 9 to receive a gravity assist, putting it on course for Jupiter. To celebrate, the Juno mission is [inviting](#) Amateur Radio operators around the world to say "HI" to Juno in a coordinated Morse code message. If enough operators participate, Juno's "Waves" radio and plasma wave experiment should be able to detect the message. The [Say "HI" to Juno](#) web page will be updated with additional information as the event approaches. All transmissions will take place on 10 meters, with the precise (suggested) frequency determined by the last letter of your call sign (see "How do I participate?" in the link above).

Sponsors say Juno will have a better chance of detecting signals from many operators if the transmissions are spread out across the spectrum. The Juno Waves instrument is a broadband receiver, and the detector being used for this event has a passband that's 1 MHz wide.

While the Waves instrument is sensitive to radio signals in all amateur bands below 40 MHz, sponsors chose 10 meters, because experience with the University of Iowa instruments on the Galileo and Cassini Earth flybys showed significant ionospheric shielding at lower frequencies. Sponsors actually are hoping for poor band conditions on October 9, so an appreciable fraction of the radiated energy can escape the ionosphere into space. Indicators on the [Say "HI" to Juno](#) web page will instruct participants when to transmit and when to stop transmitting. Each will have a timer to indicate how long until you switch from one mode to the other mode. Stations should transmit a legal station identification as the FCC or non-US regulators require. Participants should consider their stations to be operating as attended beacon stations and should avoid transmitting on top of ongoing communications.

Stations with directional antennas should check the web site for information on what headings to use during the event. Visit the [Say "HI" to Juno](#) web page for full details and to obtain the latest information. The activity begins October 9 at about 18:01 UTC and continue until about 20:41 UTC. Operators taking part should make sure their computer clocks are synchronized to network time prior to the event. The web page will indicate when you start or stop transmitting (key down/key up).



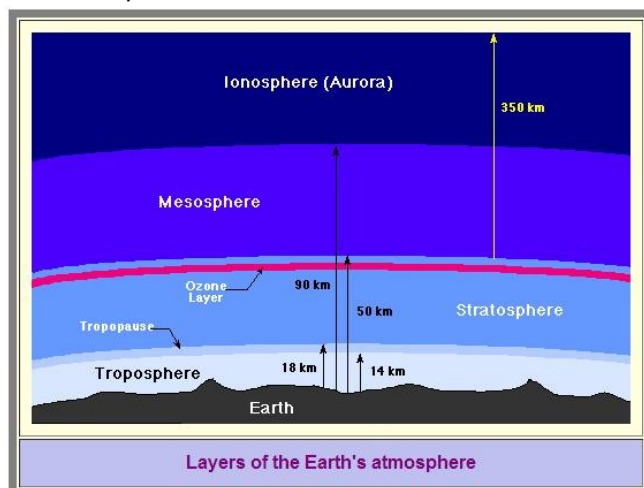
Map showing Juno's ground track.

Participants can receive a QSL card for contacting Juno. [E-mail](#) your call sign and mailing address. Additional information is available at [NASA's Juno](#) web site and the [Mission Juno](#) web site. — NASA Jet Propulsion Laboratory; thanks to John Andrews, ACØXY

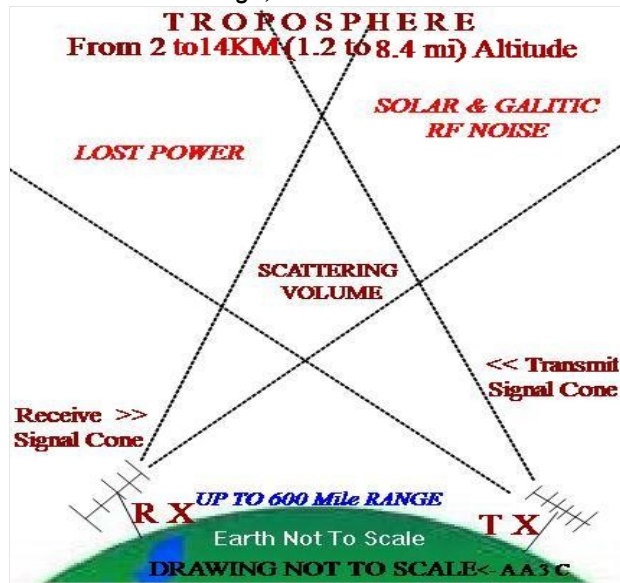
TROPOSPHERIC SCATTER RADIO PROPAGATION – By James L. Ibaugh, AA3C

There have been books written about the subject of Tropospheric Scatter Radio Propagation (a.k.a. Troposcatter Propagation). I will try not to write a book, rather an understandable short article about the subject.

"A picture is worth a thousand words."



Another Image, another 1000 words worth.



The troposphere is where all weather takes place; it is the region of rising and falling packets of air. The air pressure at the top of the troposphere is only 10% (0.1 atmospheres) of that at sea level. There is a thin buffer zone between the troposphere and the next layer called the tropopause (top end of tropo layer).

Hams communicate with lower power and very weak receive signals, like troposcatter, or EME (Earth - Moon - Earth, moonbounce) communication. The second drawing above shows that this is an over the horizon communication system with radio communications links up to distances of about 1000 km (600 mi) using the troposphere for forward scattering rather than reflecting solid radio waves.

One useful form of radio communications technology for applications where path lengths

of up to 1000 km (600mi) are known as tropospheric scatter or troposcatter. It is a reliable form of radio communications link that can be used regardless of the prevailing tropospheric conditions. Although reliable, when using troposcatter, the signal strengths are normally very low. Accordingly tropo-scatter radio communications links require high powers, high antenna gains and very sensitive receivers and signal processing.

Troposcatter is often used for commercial radio communications applications and military systems, normally on frequencies above 500 MHz for over the horizon links. It is ideal for remote telemetry, or other links where low to medium rate data needs to be carried. Where viable, troposcatter provides a means of communication that is much cheaper than using a satellite (not to mention two earth stations and 4 antennas).

Troposcatter uses the troposphere as the region that affects the radio signals being transmitted, returning them to Earth so that they can be received by the distant receiver. Troposcatter relies on the fact that there are areas of slightly different dielectric constant in the atmosphere at an altitude of between 2 and 14 kilometres (1.2 mi & 8.4mi). Even dust (and smoke particals) in the atmosphere at these heights adds to the reflective scattering of the VHF to 10GHz signals.

Military Field Troposcatter TX & RX dishes. AN\TRC-170x2. Medium powered two antenna mobile (movable when required) field station. TX and RX are on different frequencies, far enough apart that the system can operate full duplex.



Next photo is White Alice, a high power troposcatter station in Haer, AK. Note that there are two 10 inch coaxes leading to seperate TX and RX feed horns aimed at the gray circle in the middle of the single parabolic dish antenna. TX and RX frequencies are widely seperated. With up to 25 KW transmitter output, normal operation at ~10 KW and the antenna gain



at ~21 dBi, the Effective Radiated Power (ERP) is about 1.280 Mega-watt. Some tropo sites have two antenna dishes with two TX and RX frequencies. The White Alice tropospheric scatter system operates around 900 MHz, and utilized both space diversity and frequency diversity, multiplexing a maximum of 132 simultaneous voice or data channels. After 1970, WACS (White Alice Communications System, serving from 1956 to 1985) was transferred from Air Force control to RCA Alascom (a division of RCA Globecom) and

served civilian use until the last White Alice station was closed in January 1985, when it was totally superseded by satellite communication earth stations.

OK OM, where is the Ham Radio connection? Hams take advantage of phenomena known as tropospheric scattering, tropospheric ducting, also known as “tropo” propagation. Better-equipped stations (bigger antenna and more power) are able to work others beyond their horizon by use of the popular propagation mode called tropospheric scattering. This mode occurs to some degree at all times. It involves reflection in multiple directions (scattering) of the VHF, UHF or microwave signals using irregularities in the material of the troposphere. Most definitions of this mode do not make a distinction of the particular material. This allows inclusion of variations in the water content, water or ice particles, dust, insects, forest fire smoke particles, volcano dust, high flying jet engine exhaust particles or possibly other materials. The top of this layer varies between about 6 and 15 km (20,000 to 50,000 feet), depending on the region of the world and the local weather conditions.

It is possible to span distances in excess of 400 miles on all bands up to 10GHz with a large high gain antenna and almost full legal power (1.0KW). A 15 dB gain antenna and 1 KW transmitter output would yield 32 KW ERP. Please don't stand in front of the antenna while transmitting. Depending on location, mount the gain antenna as high as safely possible (minimum of 20 feet). A clear shot at the horizon would be handy.

Tropospheric forward scattering mode of communication is a very weak receive signal operation. Computer aided weak signal software and specialized modes were developed for Ionospheric Meteor Scatter and Earth-Moon-Earth (EME) operations with good results.

Weak signal processing is common to all of these modes. The software and information is free. WSJT 9.5 is the latest version of the familiar weak-signal communication program WSJT. It offers a number of new features and mode capabilities, many of them based on experience gained with a temporary experimental release, WSJT 8. Until a complete WSJT 9.5 User's Guide is available, the present document should be read in conjunction with the older [*WSJT6 User's Guide and Reference Manual*](#), most of which is still relevant. Note the number of weak signal modes of operation in WSJT9.5.

Direct Download of WSJT9.5 from Princeton:

http://physics.princeton.edu/pulsar/K1JT/WSJT9_r3281.EXE User's Guide and Reference Manual, English version is included with program download.

[User's Guide and Reference Supplement](#) WSJT and WSPR are special digital weak signal

modes developed by ham radio's own Nobel laureate, Joe Taylor, K1JT. WSJT (Weak Signal - Joe Taylor) mode provides several modes optimized for meteor scatter, troposcatter, or EME (Earth-Moon-Earth, moonbounce) communication.

Main Screen, FSK441 Mode



[**Important note:** In Vista, Windows 7, and Windows 8 install WSJT to a directory such as C:\WSJT or C:\HamRadio\WSJT rather than the default C:\Program Files\WSJT (otherwise, you might need to set several read / write permissions explicitly [manually].)--JoeTaylor]

All of those WSJT modes work with low power on Earth to Earth (E2E) contacts with smaller antennas (lower ERP). You can use these modes around town or county to practice with a buddy running free WSJT 9.5 software even without high power or big high gain antennas.

Good Signals & Good Luck! – Jim Ibaugh, AA3C, is retired from RCA Lancaster New Products Division (Burle Industries). Reprinted from QRZ News.

HAM-PILOT SAFE AFTER TRANSATLANTIC CLUSTER BALLOON ATTEMPT FAILS

Friday the 13th came early for cluster balloonist and radio amateur Jonathan Trappe, KJ4GQV, of Raleigh, North Carolina. Trappe's attempt to cross the Atlantic in a cluster balloon ended when he "Landed safe, at an alternate location," as he put it in a Facebook post. That "alternate location" was in Newfoundland, where he remained for the night.

His lighter-than-air craft hoisted aloft by some 365 individual and colorful helium balloons took off September 12 at 1200 UTC from a ball field in Caribou, Maine. Trappe carried Amateur Radio beacons on 14.0956 MHz (110 baud RTTY) and 144.390 MHz APRS.

According to a [report](#) in the September 13 edition of Maine's [Bangor Daily News](#), Trappe went down about a mile from the coast and about 5 miles from the nearest road. Trappe had spent 2 years preparing for what he hoped would be an epic journey.

"Hmmm, this doesn't look like France," is how Trappe put it on his Facebook page, moments before announcing that he was on the ground.

A [real-time track](#) of NGØX on 14.0956 showed Trappe as still airborne at about 7 PM on September 13, although the site does not indicate the time zone. An [APRS track](#) -- only good within 150 miles or so of land -- ends over the Gulf of Saint Lawrence.

After lifting off September 12 and with things still going well, Trappe posted this optimistic status report to Facebook: "In the quiet sky, above the great Gulf of St. Lawrence, traveling over 50 MPH -- in my little yellow rowboat, at 18,000 feet." --ARRL Letter

SHORTS

SCOUTING'S JAMBOREE ON THE AIR ([JOTA](#)) OCTOBER 19-20 - The 56th JOTA will take place the weekend of Oct. 19-20, from 0000 local time Saturday to 2400 local time Sunday.

The world's largest Scouting event, JOTA attracts nearly 750,000 Scouts participating from 6000 stations in 150 countries. Not a contest, JOTA's goal is to foster Scout-to-Scout communication across borders. "The idea is to contact other Scout stations and allow as many Scouts as possible to talk to other Scouts and learn about who they are and what they are doing," the BSA says in its [JOTA guidelines](#), which offer suggested frequencies. Licensed mentors often open their stations to Scouts on JOTA weekend, serving as control operators. Radio operation will be on 80 through 6 meters and 2 meters and 70 centimeters FM simplex, all modes.

Through its Radio Scouting sponsorship, [Icom America](#) is providing stations for JOTA and other Scouting events, including the loan of five stations that will be on the air for JOTA 2013.

PSK31 LINEAR TRANSPONDER WANTED FOR SATELLITE LAUNCH OPPORTUNITY

Automatic Packet Reporting System ([APRS](#)) developer Bob Bruninga, WB4APR, is looking for someone who will build a linear satellite transponder for PSK31.

"If someone will build a linear PSK31 transponder, I have a launch opportunity in 9 months," Bruninga said in a posting to the [AMSAT Bulletin Board](#). "All it needs to be is a PSK31 linear receiver on 28.120 MHz (3 kHz bandwidth) with AGC coupled to a downlink UHF FM transmitter of about 1 W," and the transponder should be able to fit on a 3.5 inch square card.

Bruninga points out that this is the same as devices the [Brno University of Technology](#) has built for prior missions of [PCSAT2](#). Two are on the shelf, he says, but the university may not have the people to construct a third one for the new flight opportunity. He, PSK31 developer Peter Martinez and Mirek Kasal, OK2AQK, have posted a PSK31 [Transponder Concept](#) on his website. -- *AMSAT News Service*

FCC DISMISSES "ENCRYPTION" PETITION – The FCC has dismissed a [Petition for Rulemaking](#) (RM-11699) from a Massachusetts ham, that sought to amend the Part 97 Amateur Service rules to permit the encryption of certain amateur communications during emergency operations or related training exercises. The FCC put the petition filed by Don Rolph, AB1PH, of East Walpole on public notice in June. Rolph requested an additional exception to §97.113, which currently prohibits "messages encoded for the purpose of obscuring their meaning," but the FCC said in a September 18 [Order](#) that it's not persuaded his petition provides sufficient reasons to support the change.

The FCC concluded that the record does not support Mr Rolph's assertion that the prohibition on encrypted amateur communications is impairing the ability of the Amateur Radio community to provide effective support to public safety agencies during emergencies.

The FCC said it received more than 300 comments on Rolph's petition, and those opposing the change outnumbered supporters two to one.

In denying the petition, the FCC concluded, "Thus, while the proposal could advance one purpose of the Amateur Radio Service -- value to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications -- it would undermine other characteristics and purposes of the service." Read [more](#). --ARRL Letter

PALOMAR ENGINEERS PRESIDENT JACK ALTHOUSE, K6NY, SK -- WAS "KURT N. STERBA" – Palomar Engineers President John E. "Jack" Althouse, K6NY, of San Diego,

California, died September 15 after suffering a massive stroke. He was 90. With his death, his alter ego "Kurt N. Sterba," who penned the "Aerials" columns from 1999 until 2012 and authored books on antennas for [WorldRadio](#), also passes into Amateur Radio history.

Althouse graduated from the University of Nebraska with a BS in electrical engineering. He held an MS in electrical engineering from the University of Iowa. Last summer Althouse announced that he had disposed of most of his product line, since he would be "semi-retired" and entering an independent living facility. He remained active on the air until earlier this year.

Palomar Engineers, the Escondido company he operated, may become a thing of the past as well. A message on the company's website says Palomar Engineers is "temporarily closed" and "not taking orders at this time." A regular QST advertiser, Palomar marketed balun kits, RFI kits, toroids and ferrite cores and beads. It once offered antennas and other accessories.

Althouse's family has not yet decided the future of Palomar Engineers but directed questions to an [e-mail address](#). The family said outstanding orders either would be canceled and any funds refunded or fulfilled if the item could be located. --ARRL Letter

UPDATE ON THE ITEM "VANITY HQ WEBSITE PULLS THE PLUG," which appeared in *The ARRL Letter*, August 29, 2013, suggested that [RadioQTH](#) is the only remaining site to provide vanity call sign information.

Dean Gibson, AE7Q, has a site: <http://www.ae7q.com/> that offers similar information, including call sign histories and applications, available Amateur Extra call signs, and vanity call sign predictions via the FCC Amateur Radio license and application databases, automatically updated from FCC data several times a day.

SCIENTISTS ADMIT SOLAR CYCLE 24 LOW IS PUZZLING - Predictions that 2013 would see an upsurge in solar activity and geomagnetic storms have proved to be a false alarm. Instead, the current peak in solar cycle 24 is among the weakest for a century. Subdued solar activity has prompted controversial comparisons with the Maunder Minimum. The Maunder Minimum, also known as the prolonged sunspot minimum, is the name used for the period starting in about 1645 and continuing to about 1715 when sunspots became exceedingly rare, as noted by solar observers of the time. These minimums supposedly coincided with the coldest period in the last millennium.

Giuliana DeToma, a solar scientist at the High Altitude Observatory in Colorado says that the unusually low number of sunspots in recent years is not an indication that we are going into a Maunder Minimum, but added that researchers do not know how or why the Maunder Minimum started. As such, they really cannot predict the next one.

Other solar experts think the downturn is linked a different phenomenon called the Gleissberg cycle. The Gleissberg cycle, named after Wolfgang Gleissberg, is thought to be an amplitude modulation of the 11-year Schwabe Cycle which predicts a period of weaker solar activity every century or so. If that turns out to be true, the sun could remain unusually quiet through the middle of the 2020s. However, as scientists still do not fully understand why the Gleissberg cycle takes place, the evidence is, at best, inconclusive. Amateur Radio Newslines

ART BELL, W6OBB RETURNS TO THE AIR WITH A NEW SIRIUS XM SHOW "DARK MATTER" that premiered on Monday, September 16, on Sirius XM channel 104. It airs live Monday through Thursday from 10:00 pm to 1:00 am Eastern Time. Bell notes that many questions that he first brought to radio more than a decade ago are still out there. Also, that they more important now to many people than when he was doing the original Coast to Coast AM show on terrestrial radio.

THE *RCA ARC MONTHLY NEWSLETTER* IS COMPILED AND EDITED BY JIM RINEHART, AND JIM KEETH. ALL MATERIAL CONTAINED HEREIN IS OBTAINED FROM THE

SOURCES CREDITED AND EDITED FOR THIS NEWSLETTER. EMAIL TO <mailto:WebMaster@w9rca.org>. Check our web site at <http://www.w9rca.org/>